

Editorial: Paying to Publish — What is Open Access and Why is it Important?

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Is it wrong for an author to pay a journal to publish a research paper?

This has become one of the most common questions audiences ask when I speak at universities and meetings in my role as the editor-in-chief of a medical journal. The proliferation of open-access journals — defined broadly as journals whose content is available freely without barriers apart from those involved from the ability to use the Internet itself [2] — is causing important changes in the world of scholarly publishing. Open access also confuses readers, which should cause journals and the press to promote education and dialogue. Unfortunately, headlines like “Some Online Journals Will Publish Fake Science, For A Fee” [7] and “The Exploitative Economics Of Academic Publishing” [6] make that dialogue harder to sustain.

Let’s try to keep it cool for another 900 words or so, and examine the various ways information can be disseminated, as well as the incentives that each approach might create.

Before diving in, it is worth remembering what journals actually do, and what “scholarly publishing” means. For a few dollars a year, one can create a website or blog, and

post research results on it instantly; most academic departments have websites that likewise allow near-immediate dissemination of new knowledge at no cost to the scientist. Instead, most researchers opt to endure peer review’s indignities and delays, and some even pay for the privilege. Reasons for this vary, but the perceived values of scholarly publication include the validation of one’s findings by colleagues, the ability to participate in the debate that advances a specialty’s knowledge (an essential part of the scientific method), the wider dissemination of one’s work afforded by the reach of a good journal or publisher, and the primacy that university promotions committees place on peer-reviewed publications.

Most things that have value also have costs. Journals’ expenses generally are not offset by advertising revenue [4]. Speaking generally but accurately, some of the remaining costs can be covered in two ways: Charging users or users’ institutions to access content in a journal (a subscription-based model), or charging authors to publish in a journal (one common open-access model, though other open-access approaches certainly exist). In broad terms, the subscription model involves dividing costs by the number of readers or users, while a common alternative involves dividing costs by the number of articles published.

Subscriptions are premised (and critically dependent) upon the idea that the contents of the journal are worth paying for. This tends to incent particular behaviors on the part of journals, including a focus on quality of the finished product, and a stringency of process that confers an air of selectivity; high-rejection-rate journals in medicine often are considered more prestigious. While no doubt there are some excellent open-access journals, and it is clear that not all subscription-model journals achieve those two aspirational standards, the incentives created by the subscription approach (along with the relative novelty of the open

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access movement) remain sufficient to allow easy substantiation of the following claim: The best journals in medicine and science still sell subscriptions.

Even so, there are some important philosophical and practical reasons why open access is gaining traction, and for why the answer to the opening question of this editorial is unequivocally “no” — or at least “not in all cases”. First, governments fund a great deal of research, and taxpayers fund governments. Because of this, there is an ethical case to be made that publicly funded work should be publicly available. Moving the paywall back from the subscriber to the author, as in an open-access model, accommodates this principle. Because of this, major public funders of research in the United States and Europe — including the National Institutes of Health in the United States and the Wellcome Trust in the United Kingdom — have open-access mandates. Some university librarians assert that rising subscription costs represent a crisis that impairs their ability to support the academic mission [8]; many libraries support open access for this reason among others [10, 11]. Finally, most [9] open-access models allow authors to retain copyright, allowing them to disseminate their work on university websites, and distribute it elsewhere without further charge. There is evidence that that open-access articles are more influential in terms of usage than are articles placed behind subscription-model paywalls [3, 5], although truly fair comparisons on this question will be difficult to conduct.

But open access has a dark side. There is a perception that if journals collect fees from authors rather than subscribers, those journals will accept work of lower quality in order to collect more fees. This perception is what lies behind the opening question of this essay, and was the motivation behind a recent “sting” carried out by the journal *Science* [1]. The journal found a very high proportion of open-access journals that purport to do peer review appear to be little more than pay-to-play scams [1]. I hasten to add that many others are entirely reputable, some open-access journals have impact factors several times higher than any orthopaedic surgery journal, and as we all know, the quality of subscription-model journals also varies widely. I suspect many subscription-model journals would have been “stung” had *Science* opted to include them in its recent operation; one need not be a cynic to imagine why a subscription-model journal like *Science* might not choose to do so. Finally, open access is impractical for many researchers in a specialty like orthopaedic surgery, where most research is not funded extramurally. Open access fees can cost several thousand dollars, and most authors simply cannot or will not pay them.

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The fact that major public funding agencies, large university libraries, and multinational publishers are behind open access suggests it is here to stay. We do not completely know how this emerging trend will change scholarly publishing in general, and orthopaedic publication practices in particular, but I have a strong sense that it will. Stay tuned.

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